

CLAIMS

1. A flow restrictor (101) comprising:
 - a flow channel (130) formed between at least a first member (110) and a second
 - 5 member (120) arranged in engagement with each other,
 - the flow channel having an inlet end portion (131) in fluid communication with an inlet (112) opening and an outlet end portion (132) in fluid communication with an outlet opening (113),
 - the flow channel comprising a generally U-formed portion (135) with a pair of op-
 - 10 posed first and second channel portions (136, 137), and
 - a safety channel (140) arranged between the opposed first and second channel portions,
 - the safety channel comprising an end portion (142) in fluid communication with an exterior space relative to the flow restrictor.
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2. A flow restrictor as defined in claim 1, comprising a plurality of generally U-formed portions, each with a pair of opposed first and second channel portions.
3. A flow restrictor as defined in claim 2, comprising a plurality of safety channels ar-
- 20 ranged between at least a portion of the opposed first and second channel portions.
4. A flow restrictor as defined in any of claims 1-3, wherein:
 - the first member comprises a first surface portion (111) and the second member comprises a second surface portion (121), the first and second surface portions being ar-
 - 25 ranged in opposed engagement with each other, and wherein
 - traces (130, 140) are formed in at least one of the first and second surface portions, the traces in combination with an opposed surface portion forming the flow channel and the safety channel(s).
- 30 5. A flow restrictor as defined in claim 4, wherein the surface traces are formed in one of the first and second surface portions.
6. A flow restrictor as defined in any of claims 1-3, wherein:
 - the first member (210) comprises a first surface portion (211) and the second mem-
 - 35 ber (220) comprises a second surface portion (221), the flow restrictor further comprising an

intermediate member (230) arranged between the first and second surface portions and in engagement therewith, and wherein

- at least one through-going trace is (239) formed in the intermediate member, the through-going trace(s) in combination with opposed surface portions forming at least a portion of the flow channel and/or the safety channel(s).

7. A flow restrictor as defined in claim 6, wherein traces (240) are formed in at least one of the first and second surface portions (211, 221), the traces in combination with opposed portions of the intermediate member forming at least a portion of the flow channel and/or the safety channel(s).

8. A flow restrictor as defined in any of the previous claims, wherein the inlet and outlet openings (112, 113) are formed in the first and/or second member.

9. A flow restrictor (101, 201, 301) comprising:

- a flow channel formed by a circumferential wall structure and having an inlet and an outlet in fluid communication with each other,
- wherein the circumferential wall structure along substantially the entire length of the flow channel has a portion in fluid communication with an exterior space relative to the flow restrictor.

10. A flow restrictor (301) as defined in claim 9, comprising:

- a capillary tube (330) forming the flow channel, the capillary tube having first and second opposed end portions (331, 332) and an outer surface,
- a supporting structure (310, 340) supporting the first and second end portions,
- the supporting structure supporting the first and second end portions being arranged such that the outer surface along substantially the entire length of the capillary tube is in fluid communication with an exterior space relative to the flow restrictor.

11. A flow restrictor as defined in claim 9, wherein the supporting structure additionally supports the capillary tube at least at one point (335) between the first and second end portions.

12. A flow restrictor as defined in claim 10 or 11, wherein the supporting structure comprises inlet and outlet openings (341) in communication with the respective ends of the capillary tube.

5 13. A delivery device (1) comprising:

- a first variable volume cavity (31) containing a drive fluid,
- a flow restrictor (50, 52) as defined in any of the previous claims,
- a second variable volume cavity (19) in fluid communication with the first variable volume cavity through the flow channel,
- 10 - a variable volume drug reservoir (40) having in a situation of use an outlet means,
- the second variable volume cavity and the variable volume drug reservoir being arranged such that the volume of the drug reservoir diminishes when the volume of the second cavity increases, and
- drive means (33) for expelling the drive fluid from the first to the second cavity
- 15 through the flow restrictor, whereby drug is expelled from the drug reservoir through the outlet.

14. A delivery device as defined in claim 13, wherein the housing comprises a transparent portion allowing the content of the second variable volume cavity or the flow restrictor to be viewed from outside the device, wherein the drive fluid is coloured for easy visual verification of its presence in the second variable volume cavity or the flow restrictor.

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15. A delivery device comprising:

- a housing,
- 25 - a variable volume drug reservoir,
- a flow restrictor as defined in any of the previous claims,
- an outlet means in fluid communication with the first variable volume drug reservoir through the flow channel,
- drive means for expelling drug from the drug reservoir through the flow restrictor to
- 30 the outlet means.

16. A fluid transmitting device comprising:

- a first variable volume cavity containing a drive fluid,
- a flow restrictor as defined in any of the previous claims,

- a second variable volume cavity in fluid communication with the first variable volume cavity through the flow channel.

17. A drug device comprising:

- 5 - a pre-filled variable volume drug reservoir having an outlet,
- a flow restrictor as defined in any of the previous claims in fluid communication with the outlet of the reservoir.

18. A combined flow restrictor comprising:

- 10 - a first flow restrictor (1130) of a first type as defined in claim 1,
- a second flow restrictor (1142) of a second type arranged in series with the first flow restrictor.

19. A combined flow restrictor as defined in claim 18, wherein each of the first and sec-
15 ond flow restrictors is selected from the group of flow restrictors comprising the types capillary tube, micro opening and micro channel.

20. A combined flow restrictor as defined in claim 18 or 19, further comprising:

- at least one further flow restrictor (1143) arranged in series with the first and second
20 flow restrictors,
- each further flow restrictor being of the first, second or a further type.